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**Kathleen B. Levitz**  
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202 463 4113  
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October 17, 2002

WRITTEN EX PARTE

Ms Marlene H. Dortch  
Secretary  
Federal Communications Commission  
The Portals  
445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

Re: CC Docket No. 94-102

Dear Ms Dortch:

Attached is a letter that I sent to Thomas Sugrue, Chief of the Wireless Telecommunications Bureau. In accordance with Commission rules, I am filing with you electronically a copy of that letter and related attachments and request that you place the letter in the record of the proceeding identified above. Please call me at 202.463.4113 if you have any questions related to this filing.

Sincerely,



Kathleen B. Levitz

Attachments

cc: Thomas Sugrue  
James Schlichting  
Joel Taubenblatt  
Barry Ohlson  
Blaise Scinto  
Daniel Grosh  
Jennifer Salhus  
Patrick Forster

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October 17, 2002

WRITTEN EX PARTE

Barry Ohlson  
Chief, Policy Division  
Wireless Telecommunications Bureau  
Federal Communications Commission  
The Portals  
445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

Re: CC Docket No. 94-102

Dear Mr. Ohlson:

Recently representatives of BellSouth met with you and members of your staff to describe the reasoning that had led BellSouth to conclude that it was consistent with Commission Orders on the subject to recover from wireless service providers certain costs that BellSouth had incurred to upgrade its network so that these wireless carriers could meet their obligations related to implementation of E911 Phase 2. This letter and the attached slides and transparencies represent BellSouth's effort to present that reasoning fully in writing to the Commission and to include that reasoning in the record of this proceeding

Under the Commission's Orders, the responsibility for delivering the location information to the Public Safety Answering Points (PSAPs) rests squarely with the wireless carriers.<sup>1</sup> In *King County*, the Commission found that the Bureau

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<sup>1</sup> See *In the Matter of Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems; Request of King County, Washington*, CC Docket No. 94-02, *Order on Reconsideration*, FCC 02-146, (rel. July 24, 2002) ("*King County*"); *In the Matter of Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems; Petition of City of Richardson, Texas*, CC Docket No. 94-102, *Order*, 16 FCC Rcd 18982 (2001) ("*Richardson*").



correctly interpreted the regulatory provisions of Section 20.18(d), which requires wireless carriers to deliver Phase I and II data to PSAPs, taking into consideration the nature and configuration of the existing network components used to provide wireline E911 service. The wireless carrier must “deliver” the Phase I and II data to a PSAP when “the PSAP has made a timely request to the appropriate local exchange carrier (LEC) for the necessary trunking and other facilities, including any necessary Automatic Identification Location (ALI) data upgrades, to enable the E911 database to be transmitted to the PSAP.” (*Richardson*, ¶1) BellSouth has appropriately completed all the ALI database upgrades needed to enable the wireless carriers to deposit the Phase II location information in the ALI database and all changes required to transmit the x, y location information from the ALI databases to the PSAPs.

Wireless carriers undertook the industry task of developing the interface devices (commonly known as the E2 interface) needed by the wireless carriers to deliver the location information to the ALI database. The E2 interface enables the wireless carrier to meet its obligation under the Commission’s orders. It is the wireless carrier that decides which E2 interface it will use, with which MPC the E2 will interoperate, and when the E2 will be operational for its traffic. Indeed, the PSAP has nothing to do with establishing the E2. The E2 is not necessary for the PSAP to receive wireless location information, nor is the E2 necessary for the ALI to store and transmit wireless location information that is deposited by the wireless carrier. If the wireless carriers deposited their data into the ALI database as they do with Phase I, the E2 would not be necessary. For BellSouth, all of the ALI modifications necessary to transmit wireless location information to the PSAP have already been made.

BellSouth believes that the Commission did not intend for PSAPs to develop or to be responsible for technology that goes outside of the existing 911 system in order to retrieve location information from the wireless carriers’ databases. The Commission has unambiguously placed upon wireless carriers the responsibility to deliver the Phase I and Phase II data to the PSAPs. Therefore, the functionality required in the implementation of a wireless carrier’s interface device to deliver the Phase I and Phase II data to the ALI database should clearly be the responsibility of the carrier and not the PSAP.

BellSouth has attributed cost responsibility to the wireless carriers and the PSAPs in concert with the goals and mandates of the Commission Orders issued in this proceeding. The cost of making the software changes required to enable the wireless carrier to deliver the Phase II data has been incurred solely for the purpose of assuring that wireless carriers can satisfy their obligations under the Commission’s rules to deliver the Phase I and Phase II data to a PSAP. It is not the responsibility of the PSAP to retrieve (*i.e.*, pull) the data from the wireless carrier, but rather it is the wireless carrier’s responsibility to enable the PSAP to receive and use the data “supplied by the carriers” and the 911 systems. (*Richardson*, ¶ 4)



In order to understand properly the apportionment of cost responsibility between the wireless carriers and the PSAP in the BellSouth region, it is necessary to comprehend the nature and configuration of the existing network components that BellSouth uses to provide its wireline E911 services and the manner in which the wireless carriers must interface with the existing BellSouth network in meeting their obligations to deliver the Phase I and II data to PSAPs.

The attached slides present an accurate depiction of BellSouth's E911 system and the manner in which wireless carriers interface with the system to meet their Phase I and II obligations.

The 911 Wireline Call Flow on slide 3 provides a description of how BellSouth's 911 database is updated when a BellSouth wireline subscriber places a request for new service. The relevant 911 information is extracted from the service order and sent via a gateway to the ALI databases. This same process is used to update information contained in the ALI database for any existing BellSouth customer whenever that wireline subscriber makes changes to his local service.

When an emergency occurs, the BellSouth subscriber places a wireline 911 call, which is routed through his serving central office (end office) to the designated 911 Tandem Switch with Emergency Service (ES) trunks capable of providing Automatic Number Identification (ANI) information to the 911 Tandem. The 911 Selective Router at the tandem uses the subscriber's ANI to determine which Emergency Service Number (ESN) has been assigned to this ANI for routing purposes. Based on that assigned ESN, the call is selectively routed to the designated PSAP via special EM Trunks that also send the PSAP the 7-digit subscriber number and a one-digit code representing the customer's area code. The PSAP then launches an 8-digit bid (query) to the BellSouth mated ALI databases to obtain the static ALI record that matches the subscriber's ANI information. The ALI database returns the ALI data to the PSAP attendant.

In *King County*, the FCC stated that,

- *[U]nder Section 20.18(d), the carrier is responsible for providing Phase I information to the appropriate, or 'designated,' PSAP. When a CAS technology is used, the carrier, in order to satisfy Section 20.18(d), simply provides the 10 digit ANI and 10 digit p-ANI to the input of the Selective Router – which, in turn, uses the p-ANI to determine the PSAP to which Phase I information, as well the 911 call itself, should be sent (i.e., the designated PSAP). (King County, ¶ 12)*
- *When an NCAS or Hybrid CAS technology is used, the carrier must deliver Phase I information to the 911 Selective Router in a form that the router can accept and process, and this can only be accomplished through the use of an SCP or WID. Thus, in order to fulfill its Section*



*20.18(d) obligations, the carrier, if NCAS or Hybrid CAS is employed, must provide the SCP or WID. We thus do not agree with commenters that such devices are network "add-ons;" rather, they are devices that carriers must furnish in order to satisfy their E911 requirements under our rules. (King County, ¶ 12)*

Therefore, generally, wireless carriers have two options for bringing FCC Phase I compliant calls to the PSAP. They can either send one number, the pANI, which is the Non-Call Associated Signaling Solution (known as NCAS), or they can send two numbers, the wireless subscriber's "can be reached number" (CBN) Phase I data and the pANI into the BellSouth 911 Tandem, which is the Call Associated Signaling solution (known as the CAS solution).

Slide 5 of the attached presentation illustrates the call flow for a Phase I call with information being delivered by the wireless carrier using the NCAS solution. In this diagram, the wireless subscriber dials 9-1-1 and the wireless network delivers the wireless subscriber's call to the wireless carrier's Mobile Switching Center (MSC). The MSC sends tower information and CBN to a Signaling Control Point (SCP), which may be provided directly by the wireless carrier or by a third party provider chosen by the wireless carrier. The SCP determines the pANI and returns it to the MSC. Based on the pANI, the MSC then routes the voice and pANI information to the dedicated trunk group connecting the MSC to the appropriate E911 Tandem. The wireless carrier uses CAMA MF signaling to send the voice and the pANI to the 911 Tandem. As the MSC sends the voice and pANI data to the tandem, the SCP **PUSHES** the Phase I CBN into the "ALI database," not the 911 Selective Router. Upon receiving a wink back from the PSAP-CPE, the 911 tandem sends the voice call and pANI data to the PSAP, and the PSAP uses the pANI to request the Phase I CBN data that the wireless carrier has already delivered to the ALI database. The ALI database responds to the PSAP with the Phase I CBN, which is displayed to the PSAP attendant. In this scenario, the SCP used by the wireless carrier delivers (*i.e.*, pushes) the Phase I data into the ALI database in a manner that the 911 system can accept, in order to satisfy the wireless carrier's obligations under requirements of Section 20.18(d) that it deliver Phase I information to the PSAP.

Slide 6 of the attached presentation illustrates the call flow for Phase I call information that is delivered using the CAS solution. In this case, the wireless subscriber dials a 911 call, which the wireless network delivers to the MSC. The MSC identifies the pANI and CBN. The MSC then uses the pANI to route the call to the dedicated trunk group connecting to the appropriate E911 Tandem. Feature Group D signaling occurs between the MSC and the E911 Tandem. The CBN, pANI and voice call are sent to the 911 Tandem. The 911 Tandem accepts the pANI and CBN and uses an internal selective routing table to determine, based on the pANI, which PSAP should receive the call. If the PSAP can accept 20 digits, then the 911 Tandem uses enhanced MF signaling to deliver the 10-digit pANI and the 10-digit CBN to the PSAP. The PSAP then



uses the pANI (just as it would use ANI) to launch a bid (query) to the ALI database. The ALI database receives the PSAP bid, matches the pANI with the static pANI record stored in the ALI database, and sends the information to the PSAP. The PSAP CPE displays all the Phase I information to the attendant.

When, rather than have its SCP push the CBN into the ALI database, a carrier chooses to have BellSouth deliver the 10-digit CBN, that carrier would use the BellSouth Phase I solution using a Hybrid/CAS solution, which is depicted schematically on Slide 7 of the attached presentation. In this case, a wireless carrier sends the voice call, the 10-digit pANI and 10-digit CBN to the 911 Selective Router over Feature Group D trunks. The 911 Tandem accepts the pANI and CBN and uses an internal selective routing table to determine, based on the pANI, which PSAP should receive the call. Because in this case the PSAP's CPE cannot accept 20 digits, the 911 Tandem generates a CALLID, which is a unique retrieval token for this call. This CALLID is sent to the mated ALI databases along with the CBN and pANI and dynamically added to a temporary copy of the static pANI database records. The cost associated with delivering this information to the ALI database is recovered from the wireless carrier. The voice call and CALLID code is sent to the PSAP so that the PSAP can launch a query into the ALI database using this CALLID. The ALI database receives the query and matches the CALLID with the temporary record for the pANI, which now includes the Phase I CBN, and sends the response back to the PSAP. The PSAP CPE now displays the ALI information including the CBN.

As with Phase I, wireless carriers generally also have two options for delivering Phase II calls to the PSAPs. The wireless carriers can either send one number, pANI, or they can send the two numbers, CBN and pANI, to the 911 Tandem. On Slide 9 of the attached presentation, the BellSouth Phase II Wireline Compatibility Mode is used when a wireless carrier only sends the pANI and voice call to the 911 Tandem using CAMA trunks. The MSC identifies the pANI either using the SCP, as in Phase I, or other technology, such as sending a query to a Mobile Position Center (MPC). Once the 911 tandem accepts the pANI, the 911 tandem determines which PSAP should receive the call and sends the data to that PSAP. The PSAP CPE uses the pANI to query the ALI database for the Phase I and Phase II data. The PSAP query is sent to a pANI table in the ALI database to determine if the pANI the wireless carrier has sent is associated with a Phase I or Phase II call. Once a call has been identified as a Phase II call, then the wireless carrier's E2 interface provider or MPC operator has to be identified using an E2 table. Once the correct E2 provider has been identified, a trigger or request must be launched to the wireless carrier's MPC provider so that the wireless carrier can be notified that the x, y location has not been delivered to the ALI database. The MPC operator then launches a request to a Positioning Determination Element (PDE) so that the PDE can send the Phase II, x, y location data to the MPC, which then delivers the Phase I and Phase II data to the ALI database. The ALI database then passes the response back to



the PSAP where the PSAP's CPE displays the Phase I and II data to the PSAP attendant.

Slide 10 of the attached presentation illustrates the BellSouth NCAS Phase II solution. This solution is used for cases in which a wireless carrier delivers the CBN, pANI and voice to the 911 tandem. BellSouth routes the call to the tandem based on the pANI provided and sends both the CBN and pANI (*i.e.*, 20 digits) to the PSAP. If the wireless carrier has chosen the BellSouth Hybrid Solution, which is depicted on Slide 11, then, BellSouth delivers the Phase I data to the ALI database. The 911 Tandem then generates a unique retrieval token that it sends to the PSAP, as the 911 Tandem sends simultaneously the CALLID, CBN number and pANI data to the ALI database. Using the retrieval token, the PSAP can then query the ALI database for the Phase I and II data.

BellSouth also includes in this filing a set of three Transparencies to explain its rationale for concluding that the Commission intended that BellSouth recover certain upgrade costs from wireless service providers.

#### **Transparency (A): Wireless Provider Costs**

This first transparency is to be used with Slide 9 of the attached presentation, labeled "BellSouth Phase II Wireline Compatibility Mode."

*In King County, the FCC states that "wireless carriers are responsible for the costs of all hardware and software components and functionalities that precede the 911 Selective Router, including the trunk from the carrier's Mobile Switching Center (MSC) to the 911 Selective Router, and the particular databases, interface devices, and trunk lines that may be needed to implement the Non-Call Path Associated Signaling and Hybrid Call Path Associated Signaling methodologies for delivering E911 Phase I data to the PSAP." (§ 4)*

In Transparency A, the color blue is used to highlight the E911 components in the existing BellSouth E911 network used to provide Wireline E911 service to the PSAPs and to which the language from the *King County* Order quoted above referred. The transparency:

- 1) shows wireless carrier costs of all hardware and software components and functionalities that precede the 911 Selective Router;
- 2) shows the particular databases shown as the MSC, the SCP, MPC, and the CRDB;
- 3) shows the interface devices shown as the E2, the ports, and the pANI and E2 tables that are required to signal the wireless carrier that Phase I and II data have not been delivered to the ALI database; and

- 4) shows the trunk lines that may be needed to implement the NCAS methodologies for delivering Phase I data from the Tandem to the ALI databases in the BellSouth Hybrid Solutions and from the MPC to the ALI in the NCAS solution.

#### **Transparency (B): PSAP Costs**

This second transparency is to be used with Slide 9 of the presentation, labeled "BellSouth Phase II Wireline Compatibility Mode."

*The King County Order states that "PSAPs, on the other hand, must bear the costs of maintaining and/or upgrading the E911 components and functionalities beyond the input to the 911 Selective Router, including the 911 Selective Router itself, the trunks between the 911 Selective Router and the PSAP, the Automatic Location Identification (ALI) databases, and the PSAP customer premises equipment (CPE)." (§ 4)*

In this transparency, the color green is used to highlight the functionalities in the existing 911 network as enumerated by the Commission Orders as follows:

- 1) the costs of maintaining and or upgrading the E911 components and functionalities beyond the input to the 911 Selective Router, including the 911 Selective Router;
- 2) the trunks between the 911 Selective Router and the PSAP;
- 3) the PSAP CPE;
- 4) ALI database (within the existing nature and configuration of the network components used to provide Wireline E911 service); and
- 5) although the trunk lines between the PSAP and the ALI databases were not enumerated in the FCC Order, BellSouth deemed these costs to be a PSAP cost.

#### **Transparency (C): Components or Inputs that precede the 911 Selective Router**

This transparency is to be used with Slide 5 of the attached presentation, labeled "BellSouth Phase I using NCAS solution."

*The Commission noted, that "With an NCAS solution to Phase I, the caller's voice and the actual 20-digit Phase I data (10-digit phone number and 10-digit cell sector number) are transmitted to the PSAP on separate paths. At the time the wireless carrier's MSC receives the call from the base station, it sends the 20-digit information to the Service Control Point (SCP), where it is encoded*



*under a 7-digit ESRK (code) that (1) tells the 911 selective Router to which PSAP the voice call should be sent and (2) facilitates the PSAP's retrieval of the 20-digit Phase I information from the ALI database." The FCC also states that, "[w]ith Hybrid CAS, the functions performed by the SCP are performed by the Wireless Integration Device (WID), which is installed at, but precedes 'the input to,' the 911 Selective Router." (King County, n. 17)*

In this transparency, the color orange is used to show:

- 1) the NCAS solution through which the wireless carrier's SCP is pushing the Phase I data into the mated ALI databases and is delivering the Phase I data to the PSAP; and
- 2) the CAS solution through which the wireless carriers sends the 20-digits to the BellSouth 911 tandem and, on behalf of the wireless carrier, BellSouth delivers the Phase I data to the ALI database.

The FCC correctly recognized in both of these instances that, for Phase I, the wireless carrier's input to the ALI database, whether from the SCP or the 911 tandem, preceded the input to the 911 selective router, and the wireless carrier should bear the costs of delivering the information to the ALI. The same reasoning applies to Phase II location data.

Therefore, until the wireless carrier delivers the x, y to the ALI database, it has not satisfied its obligations to deliver Phase II data to the PSAPs. If the wireless carrier needs additional triggers or software to enable its own E2 to work properly in meeting its obligation, then the wireless carrier should be expected to assume the costs of all features and capability that the E2 requires in order to enable that carrier to meet its obligation to deliver the x, y to the database.

In *King County*, the FCC concluded that *"the Bureau correctly interpreted these regulatory provisions, in light of the **nature and configuration of the existing network components used to provide wireline E911 service**, by determining that the analysis of the Phase I data to determine which PSAP should respond to the call and the distribution of that call to the proper PSAP are central to a wireless carrier's obligation to "to provide" emergency wireless E911 services. Because it is the 911 selective router that performs these functions, the Bureau rightly determined that a wireless carrier must deliver the Phase I data to the 911 Selective router in order to fulfill its obligations under section 20.18(d). This is the case whether a [NCAS] technology, a [CAS] technology, or a Hybrid CAS technology is employed for implementing Phase I. Thus, we agree with the Bureau that a cost-allocation demarcation point at the input to the 911 selective router is most appropriate because, until the proper PSAP has been identified, no PSAP can "receive" and "utilize" the location data under section 20.18." (§18) (emphasis added)* Thus, the Commission has made abundantly clear that the provisions of this Order are to be interpreted in light of the nature and

configuration of the existing network components used to provide Wireline E911 service.

The BellSouth ALI database has been upgraded to enable it to receive data from all carriers, CLEC, independent ILEC, and wireless, including Phase I and Phase II. It is not technically feasible, however, for any wireless carrier to send Phase II location information directly from that carrier's MSC to the PSAP through the BellSouth 911 selective router. The 911 selective router performs the function of determining which PSAP should respond to the call and routes the call to that PSAP. The BellSouth tandem is incapable of accepting Phase II location information, and the PSAPs are incapable of receiving this information from the 911 Tandem. Therefore, with the BellSouth E911 architecture, in order for a wireless carrier to meet its obligations, it must deliver to the ALI database the location information so that such information may be transmitted to the PSAPs. This obligation is no different from that imposed on wireline carriers delivering E911 calls.

I am filing a copy of this letter and its attachments electronically with the Commission's Secretary and have requested that she place it in the record of this proceeding. I hope that you will call me at 202.463.4113 if you have any questions related to this filing.

Sincerely,

A handwritten signature in black ink that reads "Kathleen B. Levitz". The signature is written in a cursive, flowing style.

Kathleen B. Levitz

#### Attachments

cc: Barry Ohlson  
Thomas Sugrue  
James Schlichting  
Joel Taubenblatt  
Blaise Scinto  
Daniel Grosh  
Jennifer Salhus  
Patrick Forster



# Attachment 1

## The Slide Presentation

# BellSouth

## E911 Architecture Overview

September 10, 2002



# Traditional Wireline E911 Network Flow

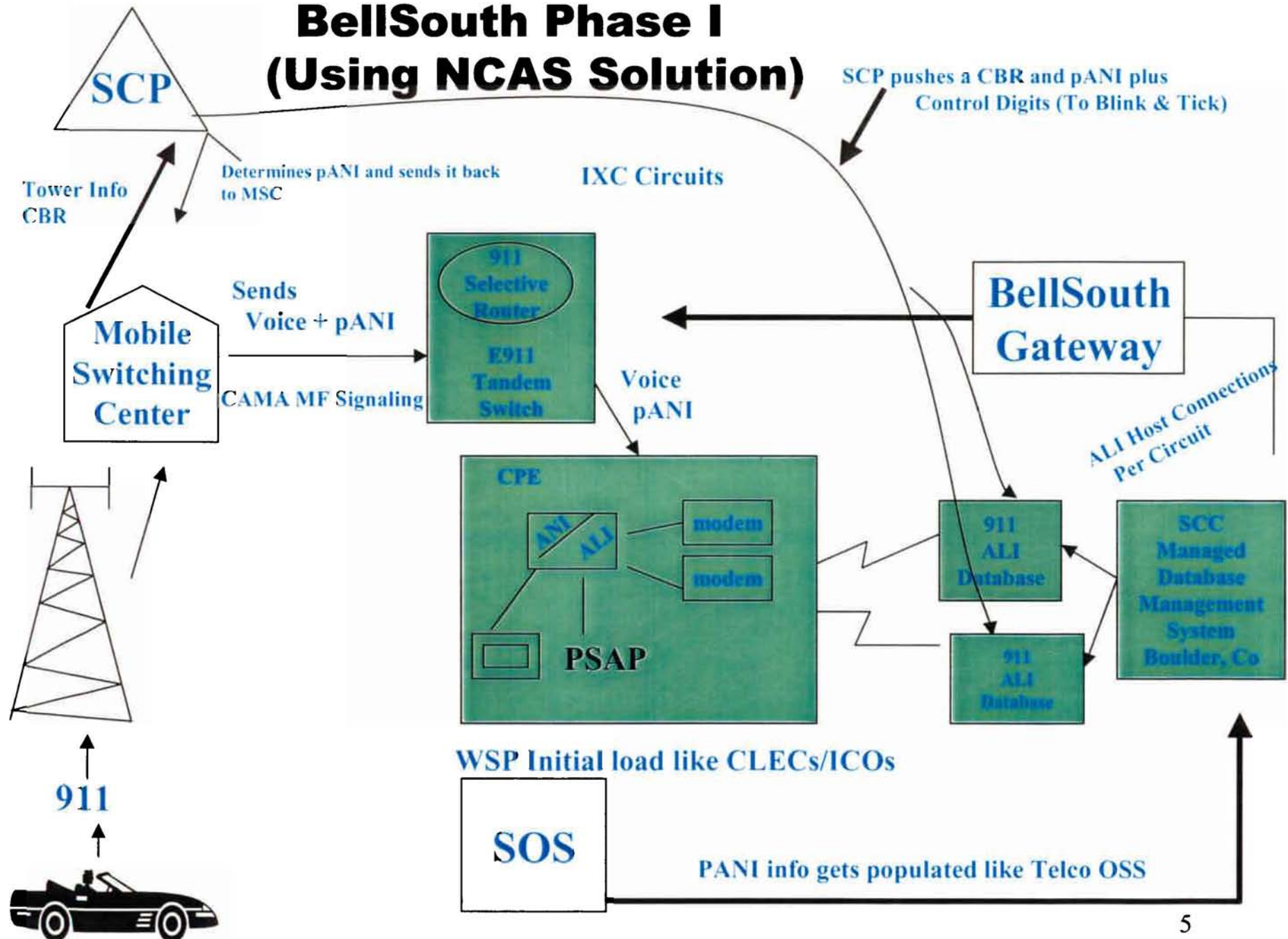
The diagram illustrates a 911 network architecture. At the bottom left, an **END OFFICE** (circle) connects to a **911 Selective Router** (oval) within an **E911 Tandem Switch** (rectangle). A line labeled **Trunking Dedicated To 911** connects the End Office to the Router. A line labeled **IFR** (Inter-Office Forwarding) connects the Router to a **911 Dispatch Center** (rectangle) at the bottom center. The Dispatch Center contains a **modem** and a **PSAP** (Public Safety Answering Point) icon. A line labeled **VOICE/PANI** connects the Dispatch Center to the E911 Tandem Switch. Above the Dispatch Center is a **CPE** (Customer Premises Equipment) box containing a **modem** and a **PSAP** icon. A line labeled **ALI BIDS** (Automatic Location Information Bids) connects the CPE to the Dispatch Center. The Dispatch Center is connected to two **911 ALI Database** boxes (rectangles). These databases are connected to an **SCC Managed Database Management System** (rectangle) at the top center, which is labeled **Boulder, Co**. The SCC system is connected to a **BellSouth Gateway** (rectangle) on the left. The Gateway is connected to the **911 Selective Router** in the E911 Tandem Switch. A line labeled **Extract 911 Relevant Information** connects the SCC system to a **Telco OSS Service Order System** (rectangle) at the bottom right.



# Phase I

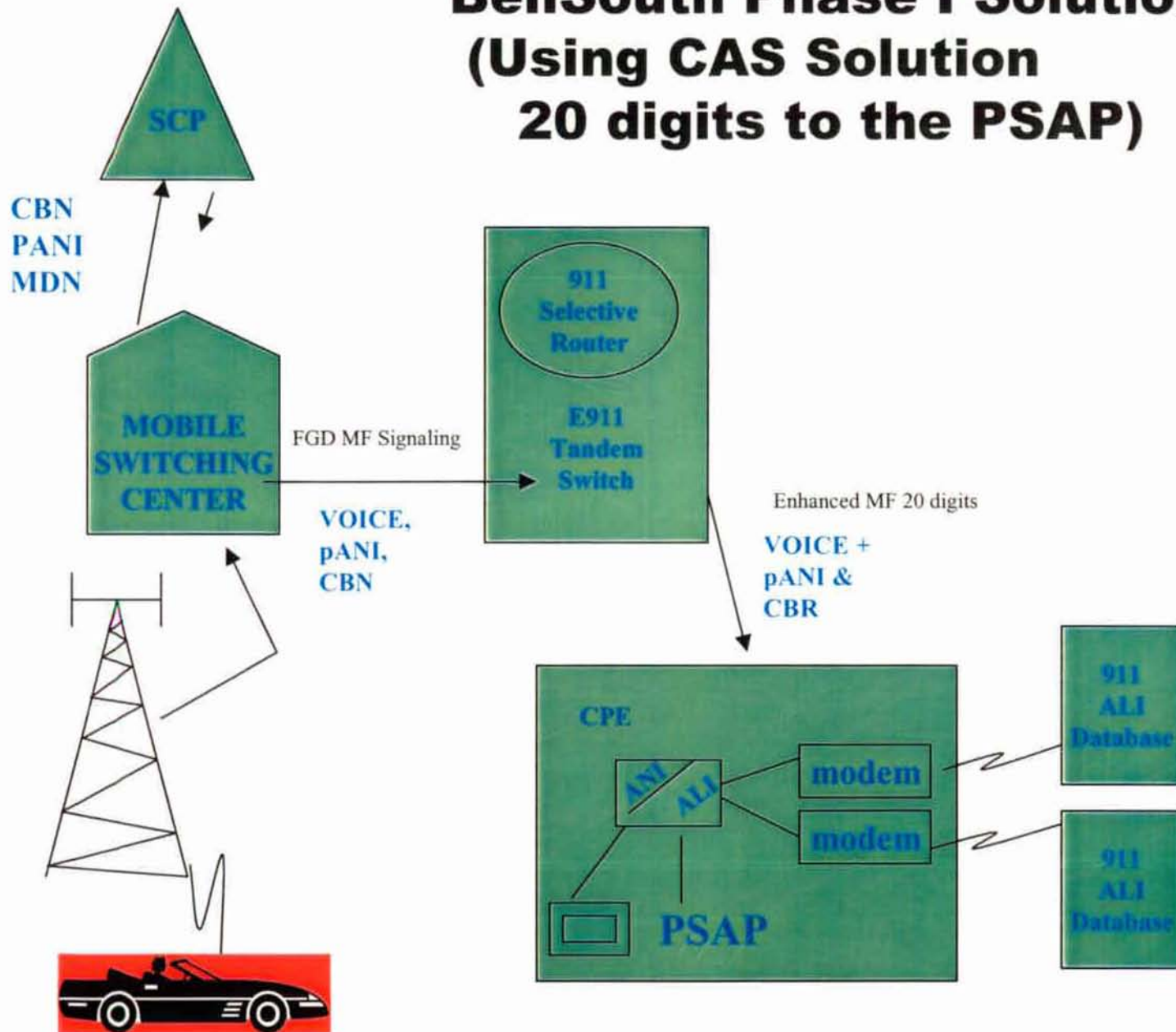
## Wireless E911 Network

# BellSouth Phase I (Using NCAS Solution)

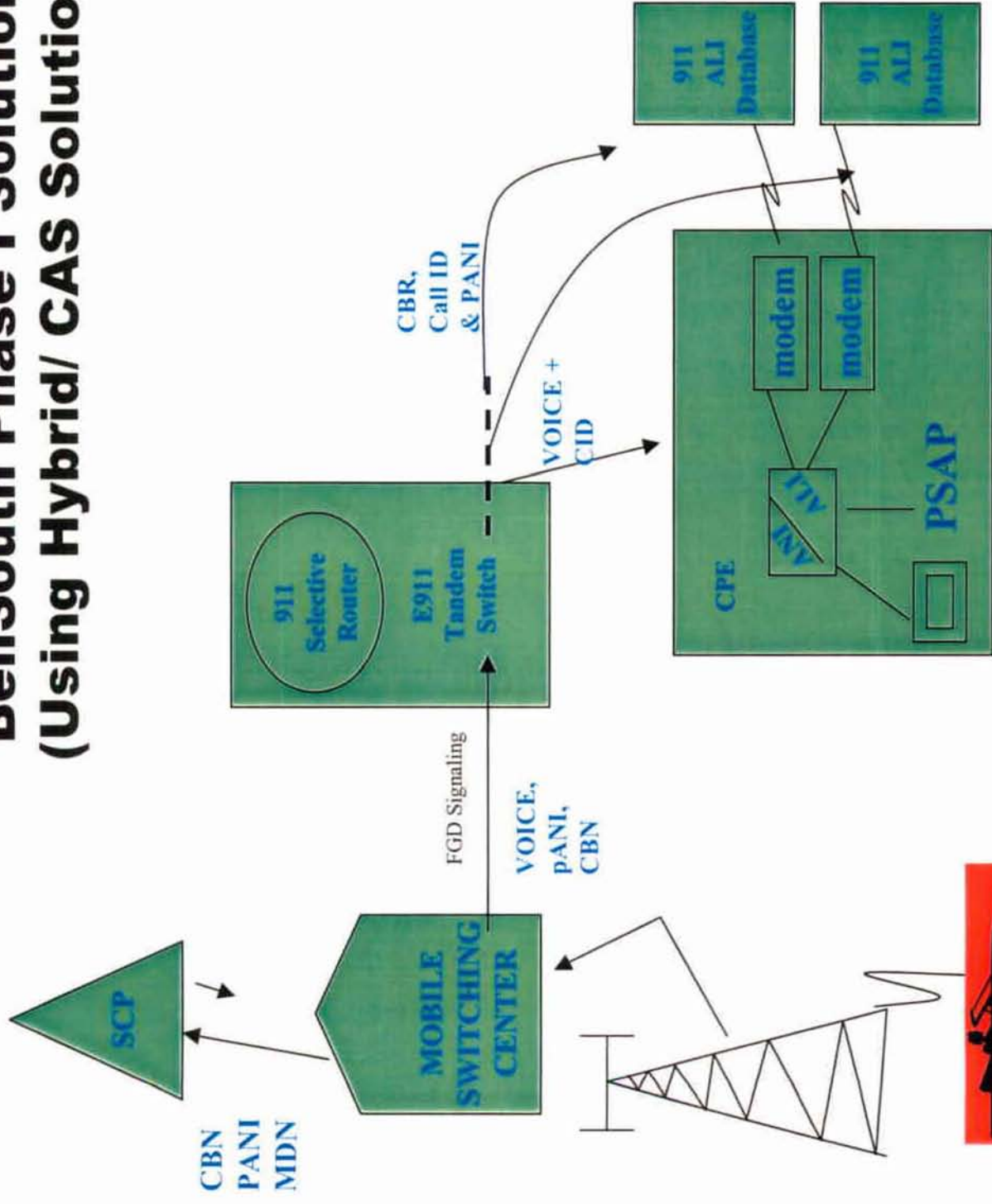




# BellSouth Phase I Solution (Using CAS Solution 20 digits to the PSAP)



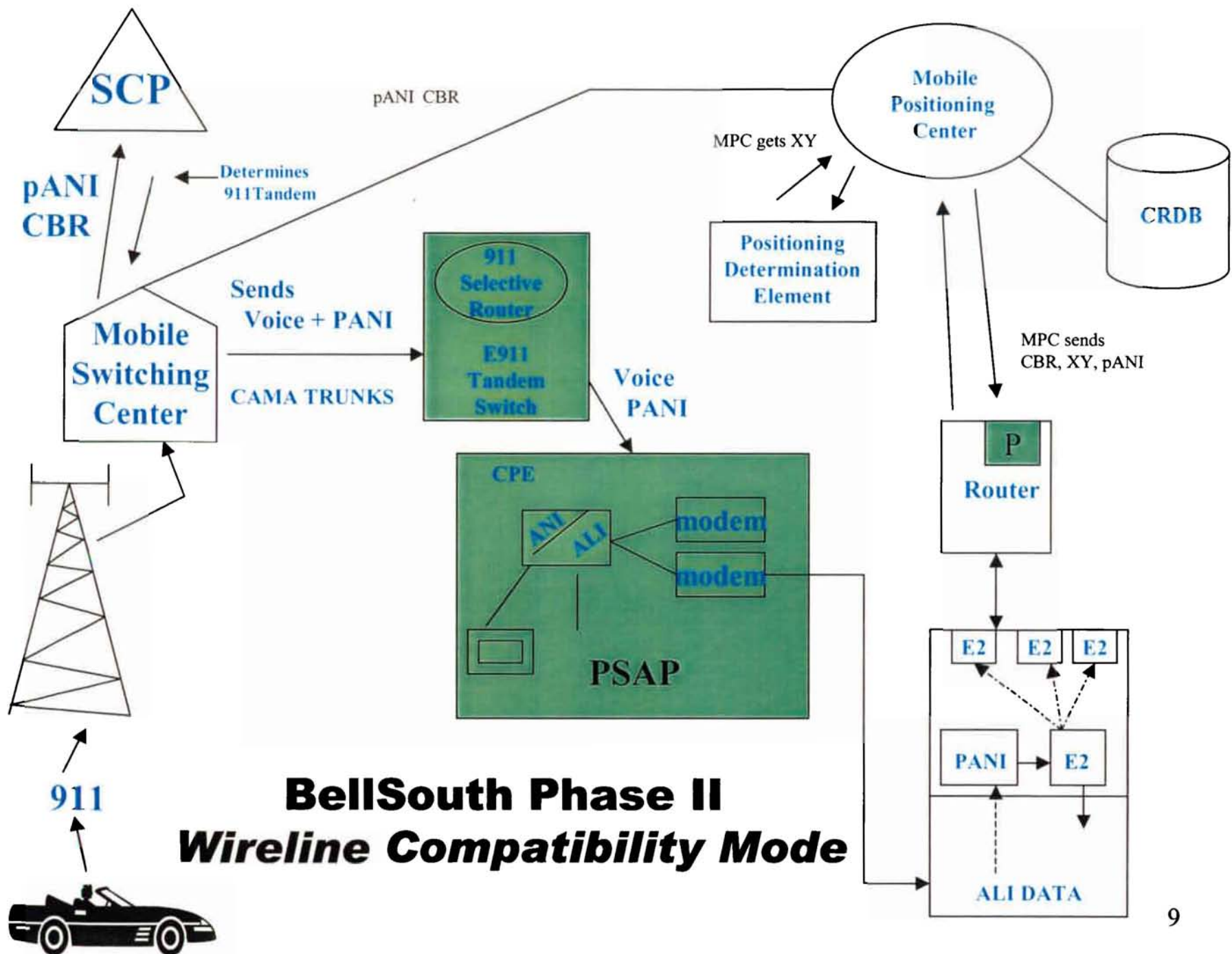
# BellSouth Phase I Solution (Using Hybrid/ CAS Solution)

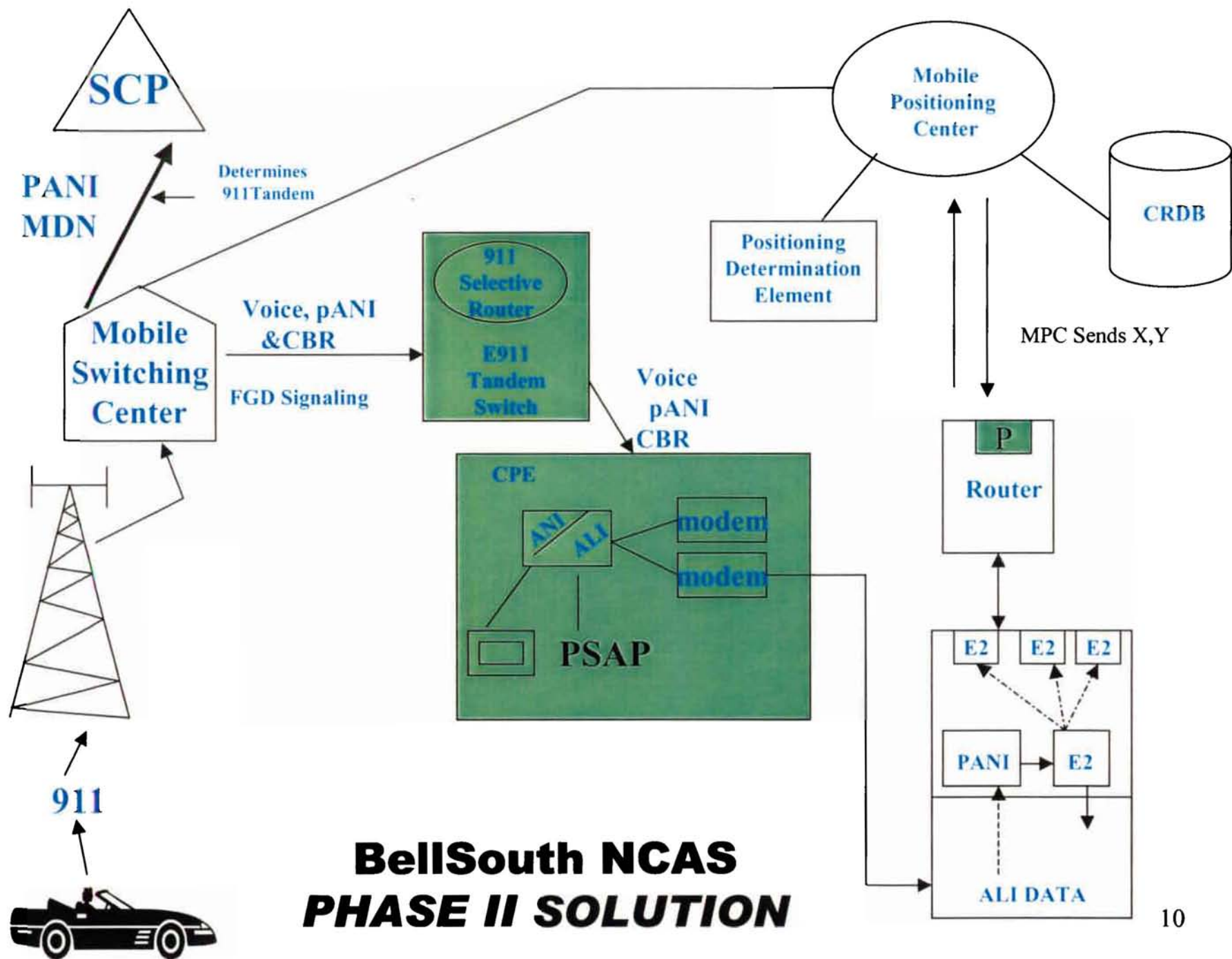


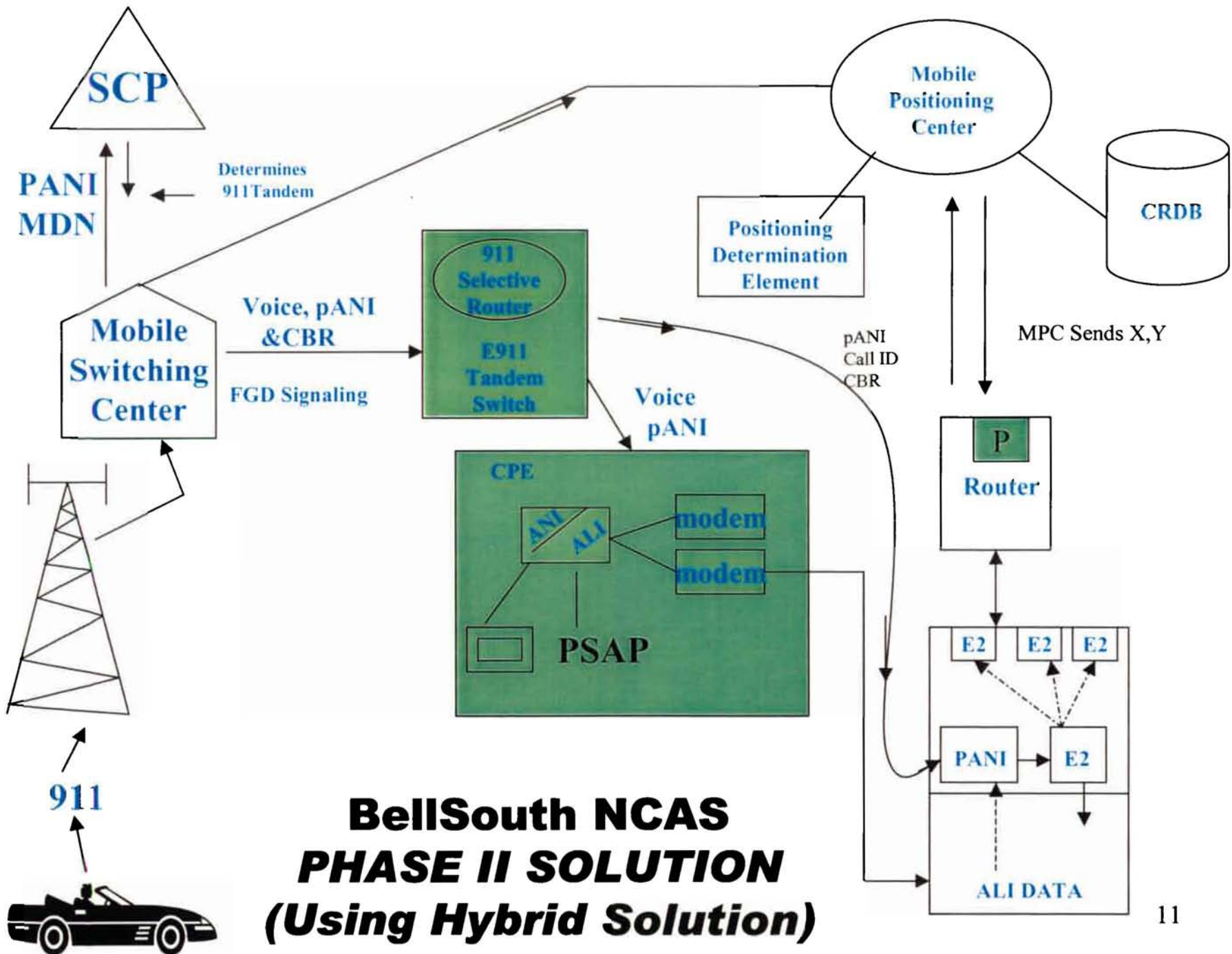
# Phase II

Wireless E911 Network







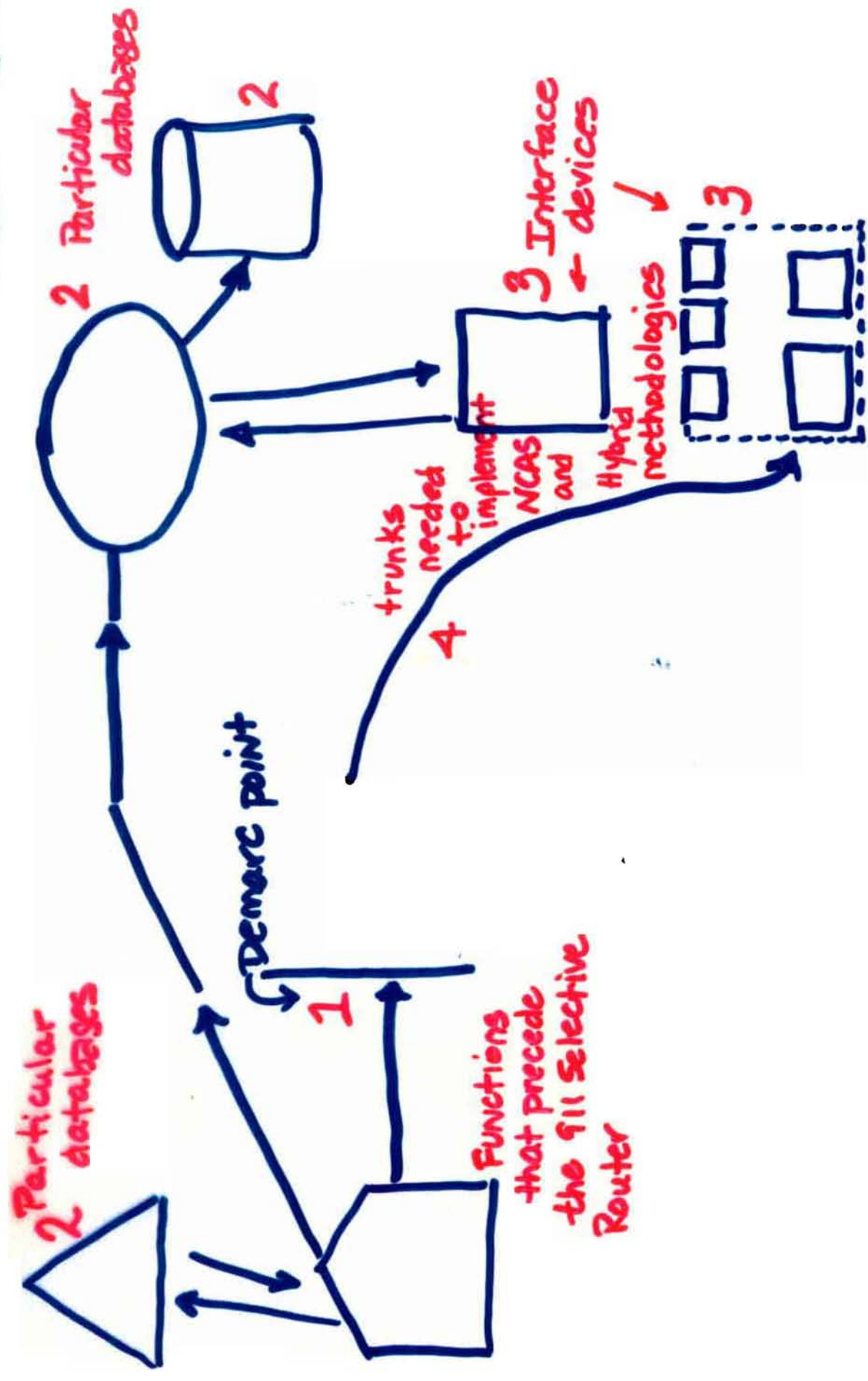


**BellSouth NCAS  
PHASE II SOLUTION  
(Using Hybrid Solution)**



# Attachment 2

## The Three Transparencies

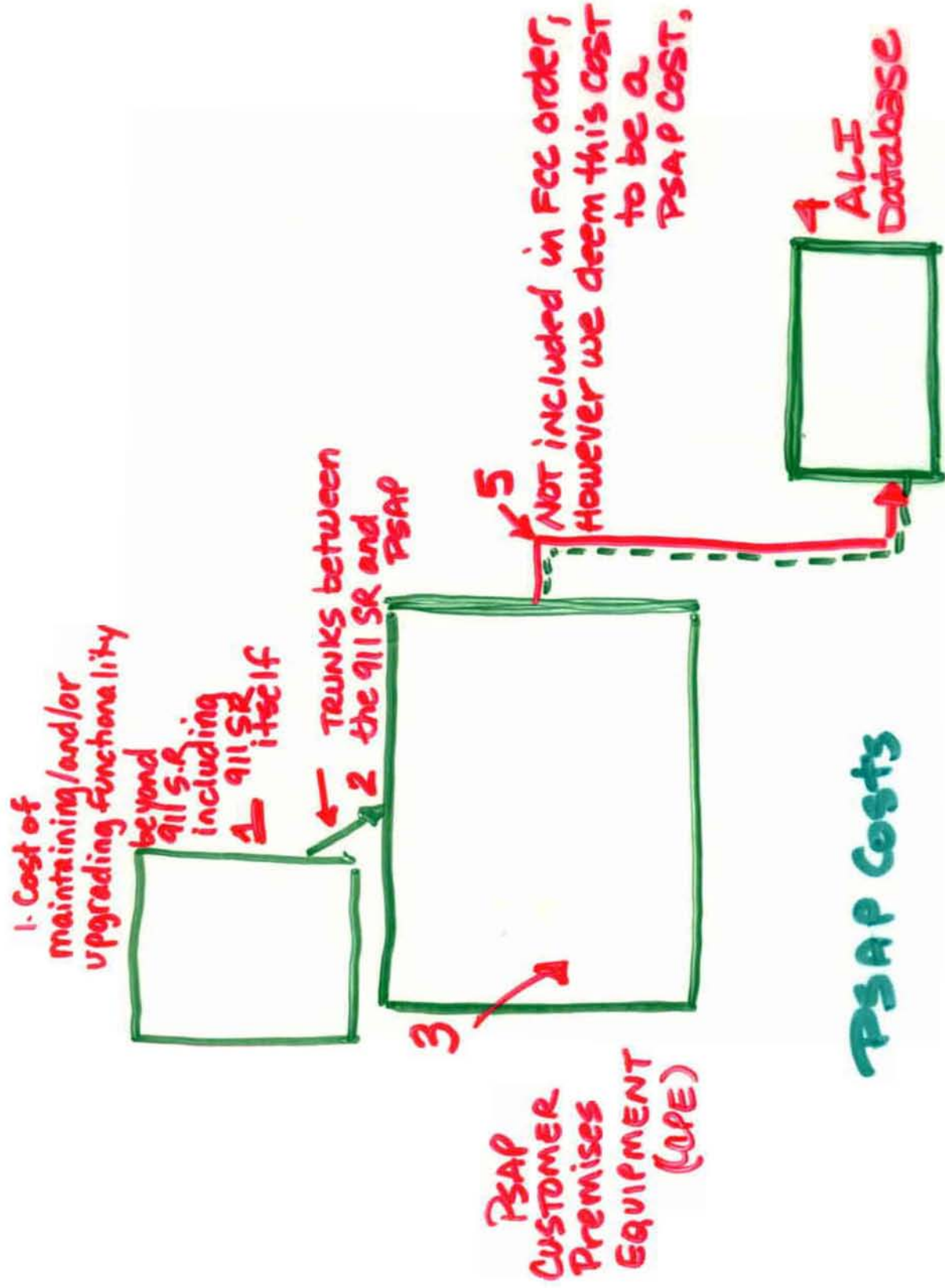


## Wireless Service Provider Costs

(A) BellSouth Transparency to be used w/ page 9 diagram

9/10/02

(B)

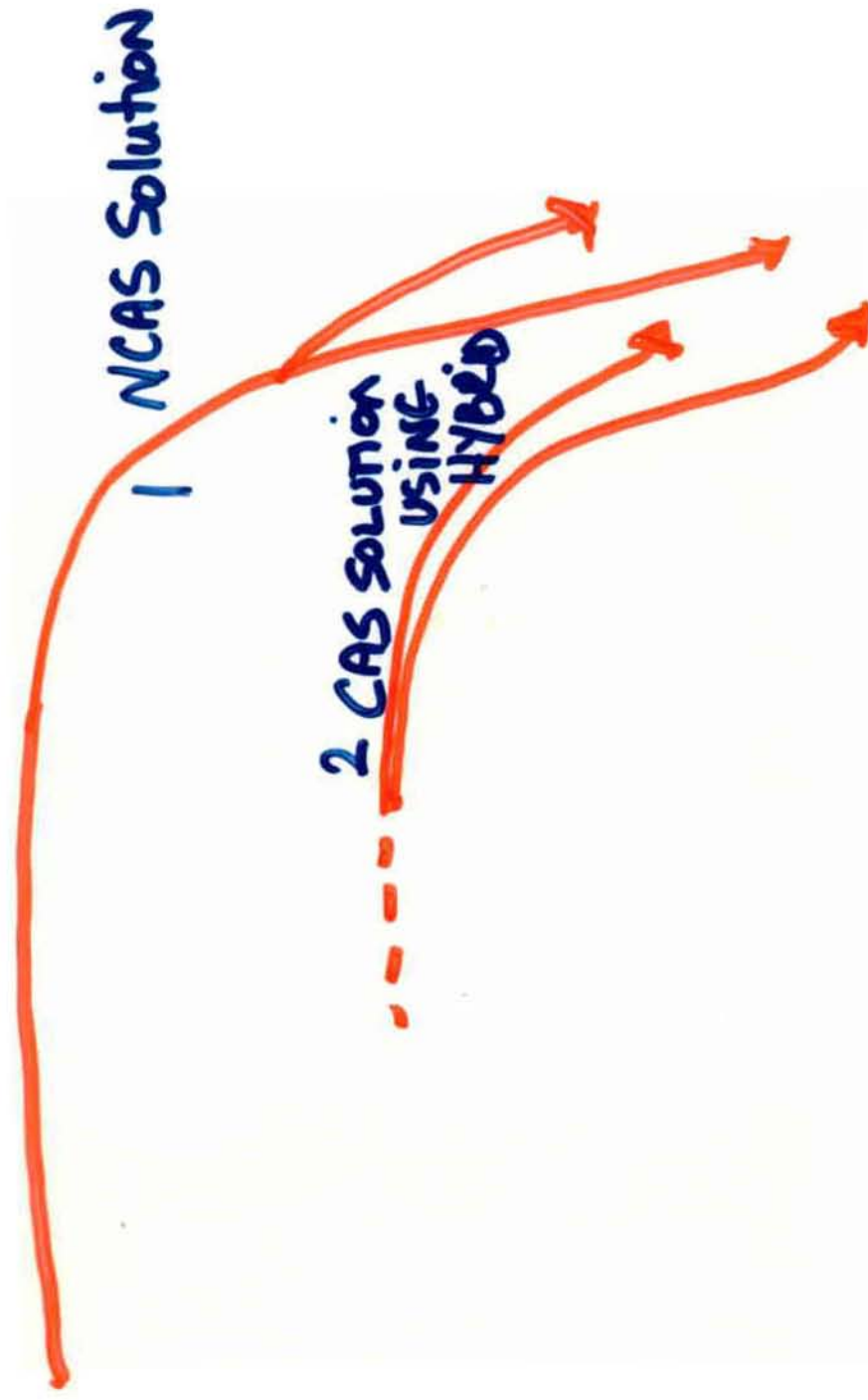


(B) BellSouth transparency to be used with page 9 diagram



9/10/02

(c)



Components

OR/ Inputs that precede the 911 Selective Router

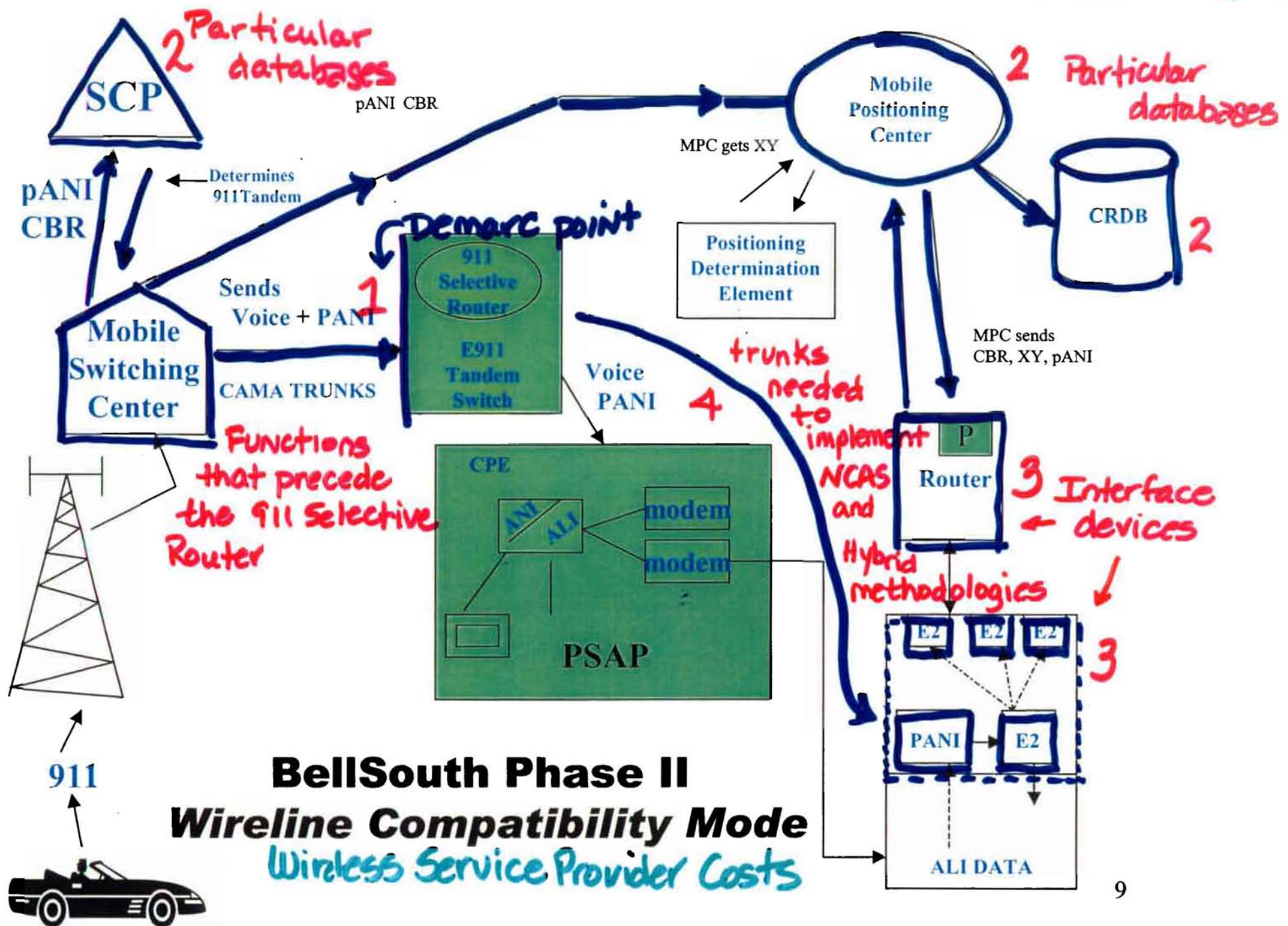
(c) BellSouth transparency to be used w/ page 5 diagram

# Attachment 3

Slide 9 with  
Transparency(A) Overlaid

9/10/02

(A)



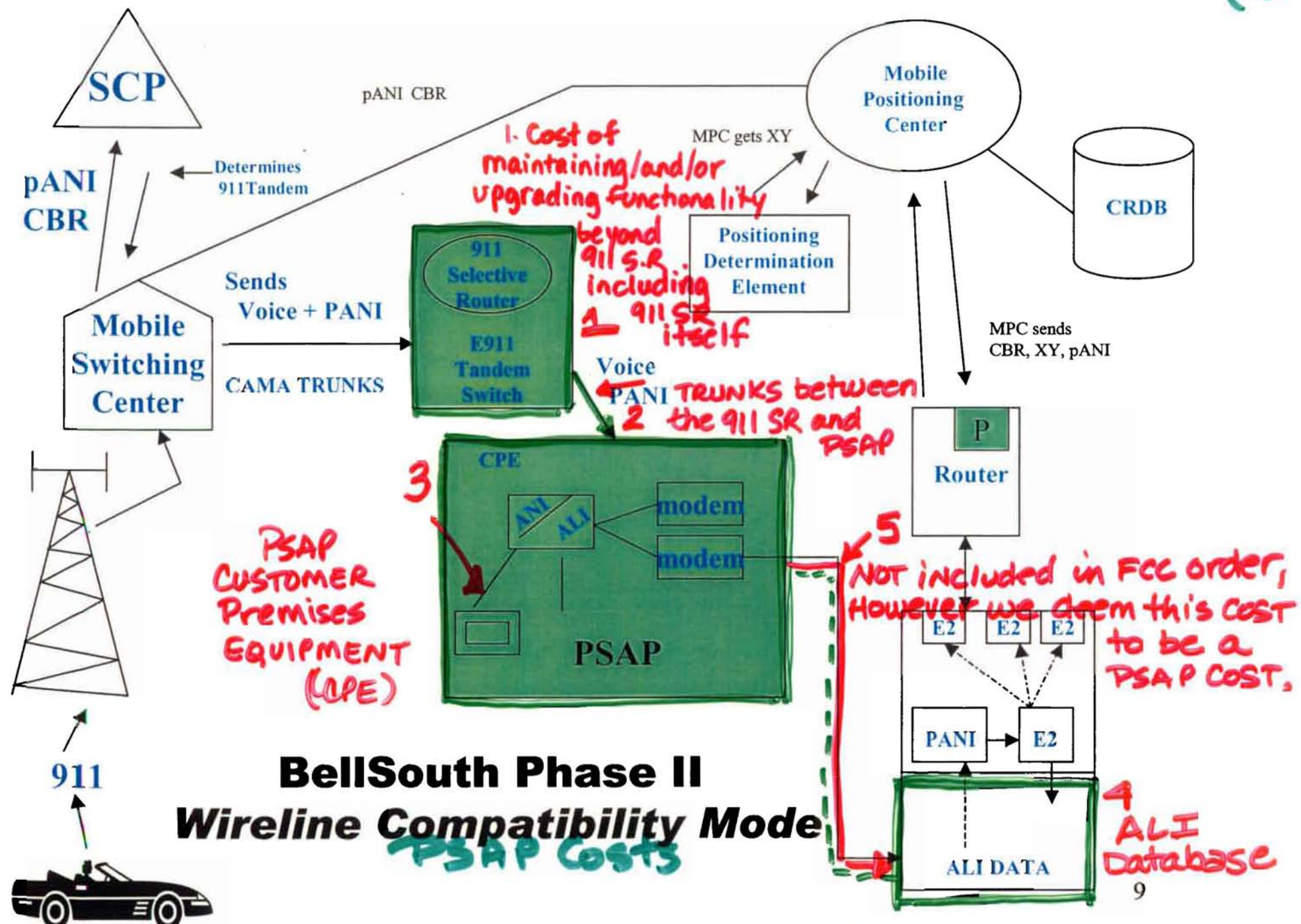
## BellSouth Phase II Wireline Compatibility Mode Wireless Service Provider Costs

'A) BellSouth Transconcordia to be used w/ page 9 diagram



# Attachment 4

Slide 9 with  
Transparency(B) Overlaid



**BellSouth Phase II  
Wireline Compatibility Mode**  
*PSAP Costs*

(B) BellSouth transparency to be used with page 9 diagram

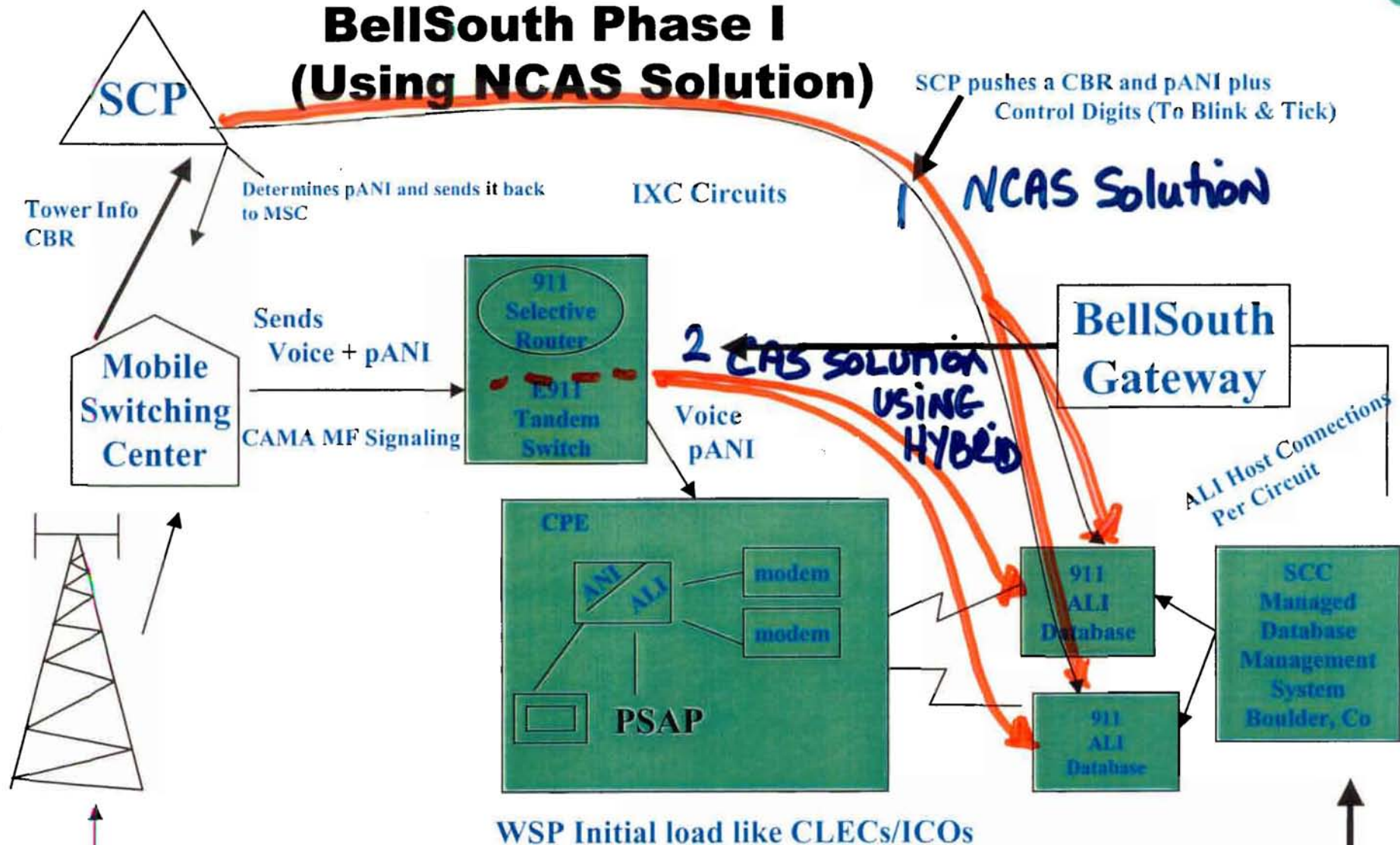
# Attachment 5

Slide 5 with  
Transparency(C) Overlaid



9/10/02 (c)

## BellSouth Phase I (Using NCAS Solution)



Components OR/ Inputs that precede the 911 Selective Router

(c) BellSouth transparency to be used w/ page 5 diagram